

09/652,097

Cofc



PATENT  
13DV13495

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: 7,103,520

Issued: September 5, 2006

Inventor(s): Shaw et al.

Assignee: General Electric Company

For: METHODS AND APPARATUS FOR  
MODEL BASED SHROUDED BELLOWS  
STIFFNESS DETERMINATIONS

Certificate  
of Correction  
OCT 11 2007

CERTIFICATE OF MAILING

I certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 5, 2007.

Robert E. Reiser, III  
Reg. No. 45,648

Attention Certificate of Corrections Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION OF  
PATENT UNDER 37 C.F.R. 1.322(a)

Sir:

Attached is Form PTO/SB/44 suitable for printing.

Submitted herewith is a copy of the Notice of Allowance and Fee(s) Due and the Notice of Allowability dated June 2, 2006 including an Examiner's Amendment/Comment amending Claims 1, 2, 3, and 4. Applicants respectfully submit that the corrections shown below are in accordance with the Examiners Amendment/Comment dated June 2, 2006. The corrections thereof do not involve such changes in the patent as would constitute new matter or would require re-examination. Applicants respectfully request a Certificate of Correction for the following:

In Claim 1, column 4, line 44, delete "comprising the steps" and insert therefor -- comprising steps --.

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In Claim 2, column 4, line 58, between "the" and "model" insert -- computer --.

In Claim 3, column 4, line 62, between "the" and "model" insert -- computer --.

In Claim 4, column 4, beginning on line 66, between "the" and "model" insert --  
computer --.

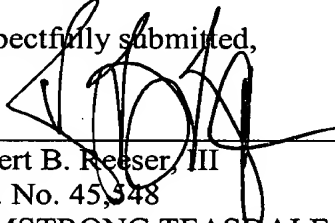
The corrections are not due to any error by Applicants and no fee is due.

The Assignment for this patent is recorded on Reel 011142/Frame 0271.

Date:

Oct 5 2007

Respectfully submitted,



Robert B. Reeser, III  
Reg. No. 45,348  
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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO. : 7,103,520  
APPLICATION NO. : 09/652,097  
ISSUE DATE : September 5, 2006  
INVENTOR(S) : Shaw et al.

**PAGE 1 OF 1**

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 1, column 4, line 44, delete "comprising the steps" and insert therefor -- comprising steps --.

In Claim 2, column 4, line 58, between "the" and "model" insert -- computer --.

In Claim 3, column 4, line 62, between "the" and "model" insert -- computer --.

In Claim 4, column 4, beginning on line 66, between "the" and "model" insert -- computer --.

**MAILING ADDRESS OF SENDER:**

Robert B. Reeser, III  
Armstrong Teasdale LLP  
One Metropolitan Sq., Suite 2600  
St. Louis, MO 63102

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## UNITED STATES PATENT AND TRADEMARK OFFICE

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## NOTICE OF ALLOWANCE AND FEE(S) DUE

29399 7590 06/02/2006

JOHN S. BEULICK (12729)  
C/O ARMSTRONG TEASDALE LLP  
ONE METROPOLITAN SQUARE  
SUITE 2600  
ST. LOUIS, MO 63102-2740

EXAMINER

STEVENS, THOMAS H

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 06/02/2006

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,097	08/31/2000	Mark Richard Shaw	13DV13495	2850

TITLE OF INVENTION: METHODS AND APPARATUS FOR MODEL BASED SHROUDED BELLOWS STIFFNESS DETERMINATIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$0	\$1400	09/05/2006

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Entered into PAGE/PIPS

Date 06-08-06

By: E. Deaton

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SCANNED

By: M.H. 6/8/06

Date: 6/5/06

By: MCE

12729-120



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,097	08/31/2000	Mark Richard Shaw	13DV13495	2850
29399	7590	06/02/2006	EXAMINER	
JOHN S. BEULICK (12729) C/O ARMSTRONG TEASDALE LLP ONE METROPOLITAN SQUARE SUITE 2600 ST. LOUIS, MO 63102-2740			STEVENS, THOMAS H	
			ART UNIT	PAPER NUMBER
			2123	
DATE MAILED: 06/02/2006				

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 683 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 683 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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## Notice of Allowability

Application No.

09/652,097

Examiner

Thomas H. Stevens

Applicant(s)

SHAW ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the pre-appeal conference 04/11/2006.
2. ☒ The allowed claim(s) is/are 1-4, 6, 7 and 9-12.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

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Art Unit: 2123

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### DETAILED ACTION

1. Claims 1-4, 6,7, 9-12 were examined.

#### ***Allowable Subject Matter***

2. Claims 1-4, 6,7, 9-12 were allowed.

#### ***Examiner's Amendment***

3 An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles Livingston (Reg. Num 53,933) on, 5/22/06:

- Claim 1, line 2, the word -- the -- was deleted.
- Claim 2, line 2, after "the", the word -- computer -- was inserted.
- Claim 3, line 3, after "the", the word -- computer -- was inserted.
- Claim 4, line 3, after "the", the word -- computer -- was inserted.

The following is an examiner's statement of reasons for allowance:

While Roesmount teaches (claims 1 and 7) natural frequency; Broman teaches (claim 7) a computer model of bellows and a processor (claim 7); US Patent 4,860,564 teaches stiffness multipliers (claims 1 and 7); and Derwent Week 197746 teaches

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shrouded bellows (claims 1 and 7), none of these references, taken either alone or in combination, with the prior art of record disclose a

*(claim 1) "a computer-implemented method for predicting natural frequency responses...providing at least one tube sub-system included a plurality of shrouded bellows components...using a regression technique based on dynamic stiffness test data; imputing the determined stiffness multiplier... that applies a standard geometry element and a flexibility factor based upon the stiffness multiplier to predict a natural frequency response; and determining location for duct support,"*

*(claim 7) " apparatus for determining natural frequency response...using a regression technique based on dynamic stiffness test data...use the determined stiffness multiplier that applies a standard geometry element and a flexibility factor based upon the stiffness multiplier to predict a natural frequency response; and determining location for duct support,"*

, in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicants' invention defines over the prior art of record.

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Page 4.

**Correspondence Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. Paul Rodriguez 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

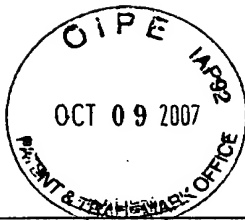
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

May 23, 2006

TS

  
Anthony Knight  
Supervisory Patent Examiner  
Group 3600

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<b>Notice of References Cited</b>	Application/Control No. 09/652,097	Applicant(s)/Patent Under Reexamination SHAW ET AL.	
	Examiner Thomas H. Stevens	Art Unit 2123	Page 1 of 1

### U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,860,564	08-1989	Kaplan, Naum M.	72/14.4
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

### FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

### NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Derwent-Week: 197746 abstract, pg. 1.
	V	
	W	
	X	

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\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



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DERWENT-ACC-NO: 1977-K2769Y

DERWENT-WEEK: 197746

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TITLE: Heat insulated pipe connection - is attached to tank  
through sleeve shrouded bellows cooled by atmospheric air

PATENT-ASSIGNEE: DENISOV V F[DENII]

PRIORITY-DATA: 1974SU-2068240 (October 18, 1974)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 530993 A	November 29, 1976	N/A	000	N/A

INT-CL (IPC): F16L059/12

ABSTRACTED-PUB-NO: SU 530993A

BASIC-ABSTRACT:

The heat insulated pipe connection is suitable for use in contact with hot gases. The pipe (1) passes into the tank (2) through a sleeve (3) which is attached to the tank by means of a flange (7) embodying a seal (8). The sleeve has a bellows-type compensator (4) terminating in a profiled base (6) which is located by a bimetallic flange (5) welded to an extended sleeve passing to the tank.

Hot gas at a temperature of e.g. 800-900 deg.C, and flowing along the pipe (1), causes the air in the cavity 'A' formed by the surfaces of the pipe and the bellows-type compensator to heat up. Because the air cavity is connected to atmosphere, the heat readily passes to the surroundings. Heat absorbed by the base section (6) is transmitted through the bellows to the air cavity and is removed in the same way thereby insulating the container (2) completely.

TITLE-TERMS: HEAT INSULATE PIPE CONNECT ATTACH TANK THROUGH SLEEVE  
SHROUD  
BELLOWS COOLING ATMOSPHERE AIR

DERWENT-CLASS: Q67

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